

RESPONSE UNDER 37 C.F.R. § 1.116

EXPEDITED PROCEDURE – Art Unit 1733

Attorney Docket No. 108298636US

Disclosure No. 01-0427.00/US

REMARKS

Claims 1, 2 and 7-11 are presently pending in this application. Claims 3-6 and 12-45 have been cancelled in this response without prejudice to pursuing these claims in a divisional, continuation, continuation-in-part, or other application.

In the Final Office Action dated October 18, 2004, the Examiner rejected claims 1, 2, 4, 6-11, 13, 15-17, 19, 21, 23-25, 27-30 and 36-40. More specifically, the pending claims were rejected as follows:

(A) Claims 1, 2, 7-11, 16, 17, 23 and 27-30 were rejected under 35 U.S.C. § 103(a) over the combination of the information in the Background of the present application ("Background Information"); U.S. Patent No. 6,378,200 issued to Lim et al. ("Lim"); U.S. Patent No. 6,212,767 issued to Tandy ("Tandy"); and U.S. Patent No. 6,071,371 issued to Leonard et al. ("Leonard");

(B) Claims 4, 13, 19, 25, 36 and 38-40 were rejected under 35 U.S.C. § 103(a) over the combination of the Background Information, Lim, Tandy, Leonard, and U.S. Patent No. 6,208,525 issued to Imasu et al. ("Imasu"); and

(C) Claims 6, 15, 21, 27 and 37 were rejected under 35 U.S.C. § 103(a) over the combination of the Background Information, Lim, Tandy, Leonard, and U.S. Patent No. 5,422,435 issued to Takiar et al. ("Takiar").

A. Response to Section 103(a) Rejection Over Background Information, Lim, Tandy, and Leonard

Claims 1, 2, 7-11, 16, 17, 23 and 27-30 were rejected under 35 U.S.C. § 103(a) over the combination of the Background Information, Lim, Tandy, and Leonard. Claims 16, 17, 23 and 27-30 have been cancelled in this response and therefore the rejection of these claims is now moot.

The rejection of claims 1, 2 and 7-11 should be withdrawn for the following reason. The enclosed Declaration of Jason L. Fuller and Shaun D. Compton Under 37 C.F.R. § 1.131 establishes conception of the aspects of the invention identified in claims

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1, 2 and 7-11 before April 10, 2001, the issue date of Tandy. As such, Tandy qualifies as prior art to the present application only under 35 U.S.C. § 102(e). Because Tandy and the claimed invention were, at the time the invention was made, subject to an obligation of assignment to Micron Technology, Inc., Tandy cannot be used as a reference to support a Section 103(a) rejection of claims 1, 2 and 7-11. Thus, the rejection of claims 1, 2 and 7-11 over the combination of the Background Information, Lim, Tandy, and Leonard should be withdrawn.

Moreover, even if Tandy were available as prior art to support a Section 103(a) rejection, the combination of the Background Information, Lim, Tandy, and Leonard cannot support a Section 103(a) rejection of the pending claims because the references teach away from several claim elements as described below.

1. The Background Information and Leonard Teach Away From Several Features of the Pending Claims

The Background Information teaches away from several features of the claims. Claim 1, for example, includes placing a base die on a substrate using a first die attach head of a die attach machine so that bond pads on the front side of the base die face toward the substrate, and stacking a first stacked die onto the backside of the base die using a second head of the same die attach machine before the base die is secured to the substrate in a heating cycle. In contrast, the Background Information teaches that it is generally necessary to heat the subassembly of the base die and the substrate before moving or otherwise handling the subassembly to avoid displacing the base die (paragraph [0030]). The Background Information further teaches that it was counterintuitive to attach the first stacked die to the base die before securing the base die to the substrate. The Background Information accordingly teaches away from stacking a first stacked die onto the backside of the base die before securing the base die to the substrate in a heating cycle. The pending claims are accordingly patentable over a combination of references that includes the Background Information because the Background Information teaches away from the features of the claims.

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Leonard also teaches away from the features of the claims. In claim 1, for example, the base die is placed on the substrate first, and then the first stacked die is stacked onto the backside of the base die. Leonard, on the other hand, is directed toward a process of simultaneously attaching a surface-mount die (i.e., a flip-chip die) and a chip-on-board die (i.e., a wire-bond die) to a circuit board. Leonard's primary purpose is to first place both the surface-mount dies 12 and chip-on-board dies 22 on the printed circuit board, and then simultaneously attach these dies to the printed circuit board in a heating cycle. Although Leonard discloses that a single heating cycle can be used to reflow solder under a flip-chip die and cure an adhesive over a wire-bond die, this reference also discloses that this process must be performed in a manner that simultaneously attaches the surface-mount dies and the chip-on-board dies to the printed circuit board. When the teachings of Leonard are taken as a whole, they teach away from the combination of (a) placing a base die on a substrate using a first die attach head of a die attach machine so that the bond pads on the front side of the base die face toward the substrate, and (b) subsequently stacking a first stacked die onto the backside of the base die. In fact, such a combination would contravene Leonard's primary purpose to place both surface-mount dies and chip-on-board dies on the printed circuit board, and then simultaneously attach these dies to the printed circuit board.

The law does not allow one reference to be modified to come up with the claimed combination of features when the reasoning for the modification contravenes the object of the invention disclosed in the prior art reference and ignores the portion of the reference that teaches away from making the claimed structure. To meet the burden of establishing a *prima facie* case of obviousness, "the Examiner must show that there is either a suggestion in the art to produce the claimed invention or a compelling motivation based on sound scientific principles." *Ex parte Kranz*, 19 U.S.P.Q.2d 1216, 1218 (Bd. Pat. App. & Interf. 1991). To show such a suggestion, the Examiner must show that "the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." *In re Bell*, 991 F.2d 781, 783, 26 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1993). Moreover, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would teach away

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from the claimed invention. *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). This same standard is echoed in the MPEP § 2142:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

The MPEP goes on to explain that if the references do not "expressly or impliedly suggest the claimed invention," it is the Examiner's burden to "present a convincing line of reasoning" as to why the modification would have been obvious. *Id. (quoting Ex Parte Clapp*, 227 U.S.P.Q. 972, 973 (Bd. Pat. App. & Inter. 1985)). This line of reasoning must be more than vague conjecture about *possible* modifications of the prior art.

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. . . . Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so."

MPEP § 2143.01 (*quoting In re Mills*, 916 F.2d 680, 16 U.S.P.Q. 2d 1430 (Fed. Cir. 1990)).

The current rejection of the pending claims does not comply with Section 103(a) because the Background Information and Leonard expressly teach away from several different elements of the claims. Moreover, even though the Background Information and Leonard may disclose a few of the aspects recited in several of the claims, these references also teach away from several claim elements such that the complete teachings of these references cannot support a rejection of the claims under Section 103. Therefore, the Background Information and Leonard should not be used as a basis for rejecting the pending claims.

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B. Response to Section 103(a) Rejection Over Background Information, Lim, Tandy, Leonard, and Imasu

Claims 4, 13, 19, 25, 36 and 38-40 were rejected under 35 U.S.C. § 103(a) over the combination of the Background Information, Lim, Tandy, Leonard, and Imasu. Claims 4, 13, 19, 25, 36 and 38-40 have been cancelled in this response and therefore the rejection of these claims is now moot.

C. Response to Section 103(a) Rejection Over Background Information, Lim, Tandy, Leonard, and Takiar

Claims 6, 15, 21, 27 and 37 were rejected under 35 U.S.C. § 103(a) over the combination of the Background Information, Lim, Tandy, Leonard, and Takiar. Claims 6, 15, 21, 27 and 37 have been cancelled in this response and therefore the rejection of these claims is now moot.

D. Conclusion

In view of the foregoing, the pending claims comply with 35 U.S.C. § 112 and patentably define over the applied art. The applicants request reconsideration of the application and mailing of a Notice of Allowance. If the Examiner has any questions or believes an additional telephone conference would expedite prosecution of this application, the Examiner is encouraged to call the undersigned at (206) 359-6465.

Respectfully submitted,

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